FINAL SYNOPSIS OF THE THESIS TITLED

PERCEPTIONS AND CHALLENGES OF GREEN BANKING: WITH SPECIAL REFERENCE TO THE KODAGU DISTRICT OF KARNATAKA STATE

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1. INTRODUCTION

In recent years, global warming has been regarded as a worldwide issue, mostly as a result of irresponsible handling of the natural environment and reckless industrial competitiveness throughout the world as per the report of the United Nations Environment Programme Finance Initiative (UNEP FI, 2007). Given that Greenhouse Gas (GHG) emissions are blamed for a shift in the natural environment's balance, resulting in negative repercussions in many nations (World Bank, 2013), a worldwide response is required (United Nations, 2013). Everything around us is being impacted by climatic change and environmental degradation. Extreme weather, a failure of climate change action, and human environmental harm have been recognised as the top hazards by likelihood-World Economic Forum's (WEF) Global Risks Report (2021), with climate change action failure ranking as the second most significant risk (only after infectious disease) (McLennan, 2021).

Green Banking has two dimensions: the way the banking business is conducted, that is, whether it is paperless or not, and where the bank invests its money. Moreover, Banks, as a significant source of funding, can be extremely important in ensuring that the economy is made up of investments that are both socially and environmentally responsible (Bayar et al., 2021). Banks play an important role in a country's long-term growth, and green banking has become a buzzword. The financial services industry is reshaping as a result of financial, economic, and environmental developments, and an all-inclusive engagement of ethical proposals and values into banking activities is taking place (San-Jose et al., 2009; Lymperopoulos et al., 2012). By channelling funds to climate-sensitive industries, the banking sector enables the adoption of environmentally beneficial methods, mitigates climate risks, and aids recovery (Part & Kim, 2020). Today, environmental and green banking are synonymous with sustainability (Kärnä et al., 2003), and banks are publicizing their corporate social responsibility (CSR) initiatives (Scholtens, 2011). To promote a green image, banks throughout the world are spending heavily on green initiatives (Evangelinos et al., 2009).

As part of green banking initiatives, various banks and NBFIs throughout the world have embraced eco-friendly financing methods as well as the green transformation of internal processes. For example, banks in Bangladesh, Brazil, Columbia, and Indonesia have begun to practice green banking in accordance with the policy framework (Bahl,

2012; Rahman & Akhtar, 2016). In its 2015 annual report, the Bank of Ceylon noted that all of its services and commodities are being pushed toward more technologically advanced platforms, which aids in the reduction of carbon footprints. Furthermore, Peoples Bank has launched a paradigm shift in its old banking approach (Oyegunle & Weber, 2015). Banks in China, Turkey, Mongolia, Vietnam, Indonesia, Kenya, and Peru have also implemented green banking concepts such as SmartGen, which includes a mobile and internet-based passbook free application, fortune branches, and the establishment of smart zones (Scholtens, 2009; Bank of Ceylon, 2015; Herath & Herath, 2019).

At the moment, Indian banks are considered as attractive for accessing global markets (Laskowska, 2018; Paramesswari, 2018; Nuryakin & Maryati, 2020), and they must acknowledge their environmental and social obligations (Prasanth et al., 2018; Zhixia et al., 2018; Sahi & Pahuja, 2020). As a result, not just among smaller alternative and cooperative banks, but also among diversified financial service providers, asset management organizations, and insurance companies, green initiatives have become common (Allen & Craig, 2016; Kapoor et al., 2016; Gopalakrishnan & Priya, 2020; Hossain et al., 2020). However, in this context, it is pertinent to know whether the customers are aware about these practices and how they perceive it and whether their perception on these initiatives contributes to the effectiveness of green banking practices is the main agenda of the present study. The study has been undertaken by taking Kodagu District of Karnataka state as a study area, to better understand the awareness perception of customers as well as bank employees to provide a significant implication in this domain.

2. STATEMENT OF THE PROBLEM

This part conveys the actual problem faced in the realistic scenario of the banking industry concerning the impact on the environment, which highlights the problem to take an in-depth analysis of the identified problem and to arrive at a feasible solution by conducting extensive research. Sailing through the available articles the major highlights showed the two major issues regarding banking activities and customer responsibilities towards the environment. Two major identified problems are discussed below:

India is highly suffering from an environmental disorder in the form of constant change in climate, radiant heating, ecological decline and green house omission. These

environmental issues are major barriers in attaining sustainable growth of the environment as well as the economy. These barriers are showing a major impact on eco-system, farming, wildlife, earth, aqua resources and humanity. The use of paper in banking transactions has hugely disrupted the ecological properties due to deforestation creating an imbalance in the environment this practice resulted in demolishing natural properties like trees leading to a reduction in oxygen and expansion of carbon dioxide. Hence this study is an immediate requirement to preserve the earth from harmful banking activities by introducing green practices and introduction of technology in the progress of banks as well as all the stakeholders.

The second major problem which needs a paramount discussion is the lack of awareness and consciousness among banking customers regarding the environmental issues caused due to traditional banking practices. At the same time ignorance of customers concerning the wide availability of environmentally friendly products and services provided by their banks. So, this study takes instantaneous proceedings to escalate the awareness on the significance of green banking in their individual and sustainable growth.

3. REVIEW OF LITERATURE

Researcher has made an effort to review all the studies available on Green Banking, few studies have been conducted on Green Banking at International and National level, but no comprehensive study has been made so far, a few scattered efforts have also been made by individual scholars. The current chapter is divided into two segments and they are:

I. RELEVANT STUDIES IN INDIAN CONTEXT

The research is carried out after reviewing extensive literature on green banking challenges and perception. An attempt is made to summarise the important studies and works keeping in mind the relevance of my study. The literature survey will use a strong base for the research of all sectors of banks. The review of literature has been organized as below:

Jaid (2021) This study effectively compared public and private banks in practicing green human resource and green banking practices. Along with understanding customers satisfaction on green banking this study also measured the awareness level of bankers about green HR practices which leading to sustainable and performance

growth among employees. The study found that customers are moderately aware of the green products and services provided by public and private banks. The awareness level about green banking services and HR was higher among private bank employees than public sector banks. Bankers placed in the administrative post were found to be known about green training, selection and other HR practices.

Boruah (2021) this thesis is an in-depth study on green banking wherein the main purpose was to measure the customer awareness level and to identify various challenges in utilizing green banking services by customers. Various green banking facilities provided by banks have been identified and also assessed the contribution of green banking on their performance. According to the result of this study majority of the customers are somewhat aware about the concept of green banking but they still lack in understanding of the technical definition related to green practices which they use from their banks. But only few customers are aware about the green banking initiatives. 49.5% of the respondents were found to have low level of awareness about green banking products and services. There is a remarkable awareness level of green banking according to chi-square. The Internet plays a vital role in creating awareness on green banking according to customers followed by ATM promotion. But there are no awareness campaigns, programmes or workshops conducted by the respective banks according to the customers. 48.3% of the customers feel that their bank makes the utilization of paper in their banking transactions. Results showed that there are still many customers who are only comfortable with paper in their banking transaction. Nearly 45.3% of the customers have problem in adopting green banking activities. Lack of knowledge, safety, complexity, poor internet connection, time consuming and problem of wrong debit and credit are the major problems customers face in adopting green banking. At last, the customers usage pattern towards green banking facilities are not up to a satisfactory level except for credit cards and debit or ATM cards.

Hebbar (2020) this study is aimed to understand green banking and to find the availability of green products in the selected research area. According to this study majority of the respondents having saving bank account are availing the benefit of ATM and debit card. It was also found that banks are taking steps in spreading the awareness about green banking but there are many other banks which are not taking any measures. In the end the researcher concludes that there is trend in the initiative of green banking practices but there is a still need of awareness from the banking side.

Parasuraman (2020) this research studied the conceptual aspects of green banking and also to identify various facilities, advantages and role of green banking towards various stakeholders. It also highlights the extent of availability of green knowledge among customers and employees. This study identified various factors affecting green banking and analyzed SWOT of green banking. The results depicted the major contributing factors in acquiring practices of green banking is economic or financial determinant subsequently ecological factor, legal factor etc. Internet and mobile banking etc. was highly ranked by the customers and these factors contribute to paperless transaction and low carbon omission.

Nedumaran *et al.*, (2020) this article measured the customers' view on green banking operations in Rajapalayam taluk. The main intention of this article was to compile the various technological measures to reduce the side effects of banking activities on environment. The various technological adoption identified by the researcher comprises online banking, recycling paper, green collaterals, green car loans and other environmental friendly services etc. Compared to all the factors influencing customer's perception on green banking, advertising found to be the major factor showing significant role. The researcher realizes adoption of green banking in India is need of the hour contributing to the progress of country.

Rai *et al.*, (2019) This article highlighted customer's view on green banking initiative. The awareness level of green banking operation is relatively lower among customers. This was mainly focused to analyze the various influential determinants on customer's presumptions and utilization of green banking products and services. Study found that efficient use of time is the major benefit whereas safety of information is a major concern of green banking.

II. RELEVANT STUDIES IN INTERNATIONAL CONTEXT

Okyere-Kwakye, E., & Md Nor (2021) this study aimed to analyze various factors influencing banks' motive behind the adoption of green banking from the point of view of employees. The analysis revealed there is a remarkable positive association between the support of management and bank's intention to acquire green banking practices. The findings also revealed there is no high customer pressure and competitors pressure on the banks intention in adopting green banking practices. The researcher grieves at the unexpected results and provides a suggestion stating there should be a change in

employee's perception towards the importance of green banking. This study highlights the importance of management support in the implementation of green banking initiatives.

Khairunnessa *et al.*, (2021) this paper explored the role of regulatory authorities of a financial institution in the implementation of green exercises. This study also measured the contribution of a financial institution in the enhancement of sustainability in the country. Analysis of secondary data revealed that the central bank of Bangladesh has a significant contribution in sustaining the financial institutions by initiating various sustainable green programmes and policies and actions. Nevertheless, these financial institutions have fare way to reach the standard set by developed countries in practicing green banking. But it has shown constant progress in the deployment of green banking practices.

Bouteraa *et al.*, (2021) this article highlighted less utilization of green banking facilities by the customers and also explored the factors influencing customers intention in utilizing green banking facilities. Based on a structured primary interview, the researcher collected information from bank professionals. The result of the study suggested 8 factors to grab the intention of customers in acquiring green banking practices. The study gave a foundation for the bankers to adopt an enhanced understanding of green initiatives for the sustainable banking environment.

Vairavan (2020) the study pondered on the utilization of online and mobile banking and customer's alertness on green banking. The results showed there is a significant relationship between the utilization of green products, facilities, benefits and its awareness level among customers. According to the results, majority of the respondents have knowledge about green banking activities.

4. RESEARCH GAP

This part scrutinizes the less pondered area in green banking which requires further research and additional contribution to existing research as well as problems. The various articles studied the awareness level of customers and various products, services and implementation adopted concerning green banking. In the national and international context, there are extensive research conducted on this area but only a few studies is been found in Karnataka. Hence, the research gap found from the literature survey discloses the need of measuring the awareness of green banking in the region of

Kodagu the district situated in Karnataka. This is considered as a gap for further research because it is not only the entire national context which will describe the customer perception but an in-depth study of one particular geographical area will give an in-depth perception of green banking facilities enjoyed by the customers. This study attempts to analyze the awareness level of customers belonging to these small areas and attempts to encourage the banking customers of Kodagu to utilize green banking facilities as a small contribution of a small area also contributes to countries major growth.

5. CONCEPTUAL MODEL

There are various factors which act as a mediator to make green banking effectives which includes Customer Benefit and Information, Attitude towards Usage and Banking Efficiency. As per the previous articles Significant relationship with responsiveness, reliability, empathy, privacy, information quality, Capital gains, time saving and contribution towards environmental protection are benefits for customers (Iqbal et al., 2016). Furthermore, the Positive relationship between green banking practices and banking environmental performance, features of green banking initiatives security & trust, value creation, environmental & social concern and ease of use are influenced by customer satisfaction (Pariagmaraye et al. 2017). Lastly, Banking and financial institution can take proactive steps including reducing the huge use of paper, and multi-branch banks to support local green initiatives by introducing the green banking concept (Herath & Herath, 2019). So, Customer Benefit and Information, Attitude towards Usage and Banking Efficiency improves the effectiveness of green banking. Various review of literature, concepts, theories and above discussion has shown the below hypothetical relationship based on which the conceptual model has been framed.

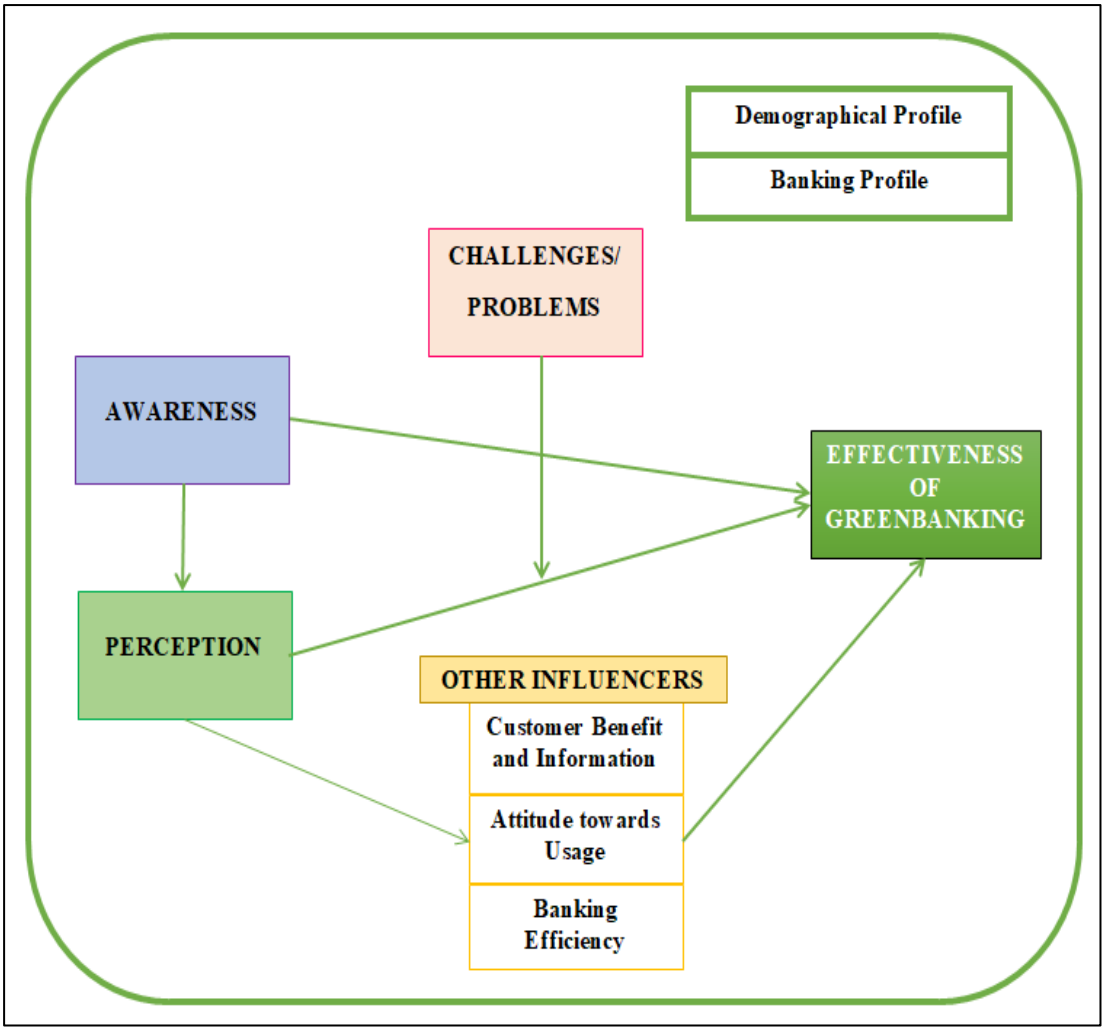

Figure 1: Conceptual Model

Source: Developed by the researcher

6. RESEARCH QUESTIONS

To encourage creative thinking and provide fresh insights into existing issues, a number of tactics can be used. An excellent research topic forces academics to reconsider their assumptions and learn something new. The chance of accomplishing the aim, as well as the potential effect and feasibility of the project, are used to assess practice research topics (Lipowski, 2008). This thesis attempts to answer the following research questions in order to arrive at a research solution.

RQ1: What is the concept of Green Banking?

RQ2: How well the customers are aware about and perceive the concept of green banking?

RQ3: Does customer awareness on green banking alter their perception?

RQ4: Whether customer perception on green banking enhances its effectiveness?

RQ5: What are the issues and challenges in the effective utilization of green banking services?

RQ6: Does customers' attitude towards usage, benefit and information, and banking efficiency enhances the effectiveness of green banking?

RQ7: What measures can be adopted to encourage the customer's intention in using green banking facilities?

7. RESEARCH OBJECTIVES

The research question, aim, and objective are the initial steps in every study. Subsequent phases follow, and they regulate the researchers' selection of population, location, and data to be collected, and study time period. If studies are to be successful, research questions, aims, and objectives must be clearly stated (Doody, & Bailey, 2016). Considering this fact the researcher has formulated the below objectives;

1. To understand the concepts of green banking in general.
2. To assess the influence of customers awareness on their perception concerning green banking.
3. To examine the impact of customers perception on the effectiveness of green banking.
4. To identify the issues and challenges in effective use of green banking services.
5. To analyse the role of customers' attitudes towards usage, benefit and information, and banking efficiency in enhancing the effectiveness of green banking.
6. To identify the problems in the implementation of green banking.
7. To suggest the various measures to educate the use of green banking by the customer.

8. HYPOTHESES OF THE STUDY

H1: Demographic and banking profile of the respondents significantly influences their awareness level on green banking.

H2: Demographic and banking profile of the respondents significantly influences their perception level on green banking.

H3: Awareness on green banking practices will directly impact customers' perception on green banking.

H4: The effectiveness of green banking practices is substantially influenced by customers' awareness.

H5: Perception on green banking practices directly impacts the effectiveness of green banking practices.

H6: Perception on green banking practices significantly mediates the relationship between awareness and its effectiveness.

H7: Customer benefit and information, attitude towards usage and banking efficiency is significantly determined by customers' perception on green banking.

H8: Customer benefit and information, attitude towards usage and banking efficiency substantially contributes to the effectiveness of green banking practices.

H9: Customer benefit and information, attitude towards usage and banking efficiency significantly mediates the relationship between perception on and effectiveness of green banking practices.

H10: Challenges in availing green banking products and services will moderate the relationship between customers' perception and the effectiveness of green banking practices.

H11: Banker profile will have an influence on the perception about green banking, green banking activities, issues with the implementation of green banking, factors influencing the adoption of green banking and green banking policy to implement green banking effectively.

H12: Perception level on green banking services and agreement level on green banking activities of banks will have a direct effect on green banking policy to make the implementation of green banking effectively.

9. RESEARCH DESIGN

9.1 NATURE AND SOURCES OF DATA:

For gathering the required information, a survey approach based on questionnaires was used. In order to gather the primary and secondary data needed for the study, a questionnaire was created with the goals of the investigation in mind. Primary data has been collected from customers as well as employees of banks.

Researcher has referred census data to determine the population as well as sample size and various institutional reports from government departments, World Bank, UNICEF, RBI, G20, United Nations, World Economic Forum's (WEF), IPCC, Ministry of Earth Sciences, Government of India and McKinsey etc. Furthermore, much information pertaining to green banking has also been obtained from internet searches, logs, blogs, websites and libraries. Moreover, the researcher referred hundreds of journals, research papers, newspapers, Doctoral thesis and magazines pertaining to green banking.

9.2 RESEARCH INSTRUMENT:

Writing a study protocol and creating a questionnaire are the most difficult task in a research process. It takes effort and perseverance to create a questionnaire. It is crucial to do a pre-test and pilot research since the changes made as a result will improve the questionnaire's validity, reliability, and responsiveness as well as provide evidence for any conclusions reached after properly interpreting the data statistically (Charlton, 2000). In this study, a well-structured questionnaire was used to collect primary data, which was distributed to the customers and employees of banks practicing green banking in the region of Kodagu district in Karnataka. The questionnaire consisted of both quantitative and qualitative aspects. Further, the components and scale used for the construction of the questionnaire has been discussed below;

9.3 COMPONENTS OF THE SURVEY QUESTIONNAIRE:

This study has used two research questionnaires, one for customers of banks and the other for bank employees practicing green banking. The components of both the research instruments are discussed below:

9.3.1 Questionnaire for Bank Customers:

Questionnaire for bank customer consisted of five parts which is categorised as follows;

Part – A: Demographical Profile

'Demographic Questions' assist in gathering client information that may be utilized to distinguish and segment groups. This part exhibits and obtains information pertaining to customers' age, gender, educational qualification, occupation, income (per annum) and domicile of resident.

Part - B: Banking Profile

Part –B of the questionnaire obtains information of the banking details of the customers which includes type of account, name of the bank, type of bank, frequency of transaction and services used in the bank.

Part – C: Green Banking Services: Features, Awareness and Perception:

Further section C consist of various questions with respect to customer's opinion on various features of green banking services, awareness on green banking and their perception on green banking. In order to better understand the awareness level of

customers on green banking, the awareness construct was categorised into two parts including general awareness on green banking and awareness on green banking products and services.

Part – D: Factors influencing the adoption of Green Banking and Effectiveness in Using Green Banking

Moreover, part D was segmented to get the customers' notion on various factors which influences them to adopt green banking has been collected which is further classified into Customer Benefit and Information, Attitude Towards Usage and Banking Efficiency being the influencing factors to adopt green banking products and services. Furthermore, this section also obtains customers view in gaining insights on the effectiveness of green banking.

Part – E: Challenges and Problems on the Implementation of Green Banking

Part –E of the questionnaire acquires customers view on the challenges of green banking and various problems on the implementation of green banking. These challenges have been considered as a moderator in the study with numerous indicators.

9.3.2 Questionnaire for bank employees:

Similarly, questionnaire for bank employees also has been categorised into various segments.

Part -A: Banker Profile

First part in the questionnaire collects banker profile including employees name, role/designation, qualification, number of years of experience, number of years of experience in the banking industry, name of the bank, type of bank, type of employment and availability of green banking practices in their bank

Part -B: Part B–Perception about Green Banking, Green Banking Activities and Issues with the Implementation of Green Banking:

The second part of the questionnaire collects employees' perceptions about green banking, agreement level on the various green banking activities initiated by the banks and also various challenges faced by the banks in the implementation of green banking activities.

Part -C: Factor influencing adoption of Green Banking Services and Green Banking Policy in Effectiveness of Green Banking: The last part of the questionnaire was aimed to collect bankers' notion on various factors influencing the adoption of green banking services and various green banking policies in making the green banking practices an effective one.

9.4. USE OF SCALE IN THE QUESTIONNAIRE:

A prominent psychometric tool for measuring answers is the Likert scale. This measuring scale features a process that makes survey creation and administration, data coding and analysis, and survey design and administration easier (Li, 2013). In the present study, the Likert scale has been used to measure the customers and bankers' agreement level and awareness level on green banking. In the questionnaire given to customers, two Likert scales were adopted where; one scale was used to measure the agreement level and the other to measure the awareness level. The Likert scale- Strongly Agree-5, Agree-4, Neutral-3, Disagree-2, Strongly Disagree-1 has been used to measure the level of agreement on features of green banking, factors influencing the adoption of green banking, the effectiveness of using green banking, challenges of green banking and problems on the implementation of green banking. Secondly, awareness scale i.e., 5=Fully Aware, 4=Aware, 3=Neutral, 2=Unaware, 1=Fully Unaware was used to measure General Awareness on Green Banking and Awareness on Green Banking of Product/Services. Furthermore, in the second set of questionnaire given to employees consisted of one likert scale i.e., Strongly Agree-5, Agree-4, Neutral-3, Disagree-2, Strongly Disagree-1 to measure the agreement level of employees on green banking activities of banks, issues with the implementation of green banking, factors influencing adoption of green banking and green banking policy to implement green banking effectively.

9.5. CONSTRUCTION OF RESEARCH TOOL:

Table 1: Sources of Research Tools

Sl. No.	Variables	Source
1	Features of Green Banking	Lalon, R. M. (2015); Herath, H. M. A. K., & Herath, H. M. S. P. (2019); Ibe-enwo, G., Igbudu, N., Garanti, Z., & Popoola, T. (2019).
2	Awareness on Green Banking	Ganesan, R., & Bhuvaneswari, A. (2016); Katti, M. V., & Jagtap, M. V. V. (2022); Sharma, M., & Choubey, A. (2022).
3	Perception about Green Banking	Hossain, M. Z., Ahmed, M., & Nisha, N. (2015);; Ganesan, R., & Bhuvaneswari, A. (2016); Masukujjaman, M., Siwar, C., Mahmud, M. R., & Alam, S. S. (2016); Rai, R., Kharel, S., Devkota, N., & Paudel, U. R. (2019); Dhamija, A., & Sahni, D. (2018); Iqbal, M., Nisha, N., & Raza, S. A. (2019); Nedumaran, D. G., & Baladevi, M. (2020).
4	Challenges/Problems of Green Banking	Islam, M. A., Yousuf, S., Hossain, K. F., & Islam, M. R. (2014); Sahoo, B. P., Singh, A., & Jain, N. (2016); Giridhar, K. V., & Sudhakar, K. G. (2017); Bouteraa, M., Hisham, R. R. I. R., & Zainol, Z. (2022);
5	Effectiveness of Green Banking	Rajput, N., Kaur, B., & Arora, A. P. (2012); Dhamija, A., & Sahni, D. (2018); Iqbal, M., Nisha, N., & Raza, S. A. (2019); Nedumaran, D. G., & Baladevi, M. (2020).
6	**Factors Influencing the Adoption of Green Banking**	
6.1	Customer Benefit and Information	Biswas, N. (2011); Bahl, S. (2012).
6.2	Attitude Towards Usage	Hossain, M. Z., Ahmed, M., & Nisha, N. (2015); Kim, M. Y., & Son, M. (2021).
6.3	Banking Efficiency	Rifat, A., Nisha, N., Iqbal, M., & Suviitawat, A. (2016); Ibe-enwo, G., Igbudu, N., Garanti, Z., & Popoola, T. (2019).

Source: Compiled by the Researcher

Apart from the above constructs, demographic factors also have been considered from previous researches such as Shrivastava, D., Shrivastava, A., & Prakash, G. (2019), further few more demographic factors were considered based on the researchers' observation.

9.6 DEVELOPMENT AND VALIDATION OF DATA COLLECTION INSTRUMENT:

Two primary methods of data production and data validation were employed, which is significant for the current study which includes;

1. Validity Testing
2. Reliability Testing

Validity Testing:

The degree to which an instrument measures what it is designed to measure is known as validity. The variety of interpretations that may be drawn from a single measurement largely determines its validity (Bordeianu & Morosan-Danila, 2013).

Content Validity:

The creation of the instrument process's content validation phase may be its most crucial. Experts begin to evaluate articles and offer insightful commentary on specific measurement-related issues (e.g., measuring knowledge). These specialists evaluate each item's representativeness about the broad range of questions that could be posed to the respondents. The purpose of background experts is to evaluate each article relating to the issue under investigation for clarity, relevance, and usefulness (Bordeianu & Morosan-Danila, 2013). Firstly, this questionnaire was distributed to four other researchers, who provided input on the questionnaire. The redesigned questionnaire was then shown to five professors or topic specialists in banking, finance, psychology, commerce, management, and statistics. They reviewed the questionnaire and made several suggestions for modifications, which were adopted. Because this study was about various bank customers of banks that practice green banking in various parts of the Kodagu district, the researcher gave these questionnaires to the bank manager or the operations head of each bank in the district. This added an industrial flavour to the questionnaire, which was lacking in the previous analyses. They are also requested to remark on whether the overall purpose and the particular objectives of this instrument have been met. Additionally examined are the articles' personalities about the target audience targeted and the conceptual framework. The instrument and auxiliary documents are sent to the experts together with a description of the target group, the conceptual framework, the study purpose, and the particular assessment criteria. The recommendations made by each of these experts were carefully considered, and they were added to, removed from, or appropriately adjusted from the final questionnaire as needed to make it more accurate and complete. Based on the numerous recommendations and viewpoints offered by these fields or topic specialists, the content validity of the questionnaire was validated. The questionnaire was also given a few more adjustments to make it more meaningful, clear, intelligible, and straightforward.

Reliability Testing:

When a psychological test is used to evaluate quality or behavior, reliability is a major problem (Rosenthal & Rosnow, 1991). Reliability is the degree to which measurements can be performed by different individuals, on various times, under various conditions, and with seemingly distinct devices that purport to measure the same object. A pilot survey of 30 respondents was carried out to prevent overlooking mistakes and to complete the interview schedule and measuring scale. Out of the 30 respondents in the pilot research, 10 were from State Banks of India, 10 were from Karnataka Bank, and the remaining respondents were from Canara Bank. The study was conducted in Virajpete Taluk. To determine the validity of the questionnaire, the study was designed to cover the majority of demographic characteristics except Taluk levels. To check reliability, Cronbach's Alpha test has been used.

The reliability and validity of the scale were evaluated using the proper techniques following the completion of the pilot survey. The interview schedule and the measuring scales were modified as necessary. Moreover, the results of Reliability and Validity testing has been shown in the below table;

Table 2: Results of Reliability and Validity testing

Construct	No. of Items	Reliability		Validity			
		Composite Reliability	Cronbach Alpha	AVE	MSV	Convergent	Discriminant
Features of Green Banking	8	0.8795	0.8245	0.6775	0.6385	AVE>0.5	MSV<AVE
Awareness on Green Banking	26	0.8415	0.7885	0.7655	0.8435	AVE>0.5	MSV<AVE
Perception about Green Banking	15	0.7215	0.701	0.5795	0.6585	AVE>0.5	MSV<AVE
Challenges/Problems of Green Banking	14	0.7705	0.7465	0.5695	0.6455	AVE>0.5	MSV<AVE
Customer Benefit and Information	8	0.7145	0.7575	0.6895	0.6105	AVE>0.5	MSV<AVE
Attitude Towards Usage	6	0.8405	0.7795	0.6795	0.6625	AVE>0.5	MSV<AVE
Banking Efficiency	11	0.7515	0.7565	0.8435	0.7655	AVE>0.5	MSV<AVE

Source: Data Compiled by the Researcher

9.7 SAMPLE DESIGN:

Population and Sample Size:

The study considered bank customers as well as employees of SBI, UBI, BOB, Canara Bank, Central Bank of India, Karnataka Bank, HDFC, ICICI, FEDERAL Bank And AXIS BANK as population, from which the sample size has been obtained. The process of sample selection has been calculated using Taro Yamane formula. The calculation as well as distribution of these populations is explained below in a tabular form;

The sample size was determined using the Taro Yamane formula. According to Kothari (2005), a confidence level of 95% suggests that there are 95 chances in 100 (or.95 in 1) that the sample findings accurately reflect the state of the population within a certain precision range, as opposed to 5 possibilities in 100 (or .05 in 1).

$$n = \frac{N}{1 + Ne^2}$$

A. Sample Size Calculation of Public Sector Bank Customers:

Where, n= Sample Size

N=Total Population

e= Error Tolerance (Sampling error of 5% or 0.05)

n =4,81,444/1 + 4,81,444 (0.05*0.05)

n = 4,81,444/ 1+4,81,444*0.0025

n =4,81,444/1,204.61

n=4,81,444/1,204.61=399.6679Approximately 400

According to the Taro Yamane (1967) method 400 was the sample size of the study.But in the present study sample size was fixed to 430 which has been selected from 5 public sector banks.

Table 3: Public Sector Bank - Customer Branch Wise Distribution

Banks	No. of Branches	Bank Customer	Sample
SBI	21	1,55,090	158
UBI	17	81607	69
BOB	24	92168	88
Canara Bank	25	147705	108
Central Bank of India	3	4874	7
Total	**90**	**4,81,444**	**430**

Source: Lead District Office, Madikeri

B. Sample Size Calculation of Private Sector Bank Customers:

n =33085/1 + 33085 (0.05*0.05)

n = 33085/ 1+33085*0.0025

n =33085/1+82.7125

n=33085/83.7125=395.2217 Approximately 395

According to the Taro Yamane (1967), method 395 was the sample size of the study. But in the present study sample size was fixed to 410 which has been selected from 5 private sector banks.

Table 4: Private Sector Banks - Customer Branch Wise Distribution

Banks	No. of Branches	Bank Customer	Sample
Karnataka Bank	9	14029	136
HDFC	7	10530	122
ICICI	3	3549	92
FEDERAL BANK.	2	2563	28
AXIS BANK	3	2414	32
Total	**24**	**33085**	**410**

Source: Lead District Office, Madikeri

C. Sample size calculation of Nationalized Bank Employees:

n =540/1 + 540 (0.05*0.05)

n = 540/ 1+540*0.0025

n =540/1+1.35

n=540/2.35=229.787Approximately 230

According to the Taro Yamane (1967) method 230 was the sample size of the study. In the present study sample size was also fixed to 230 which has been selected from 5 public sector banks.

Table 5: Public Sector Banks - Customer Branch Wise Distribution

Nationalized Bank	No. of Branches	Bank Employees in Each Branch	Population	Sample
SBI	21	6	126	54
UBI	17	6	102	43
BOB	24	6	144	61
Canara Bank	25	6	150	64
Central Bank of India	3	6	18	8
Total	**90**		**540**	**230**

Source: Lead District Office, Madikeri

D. Sample Size Calculation of Private Sector Bank Employees:

n =144/1 + 144 (0.05*0.05)

n = 144/ 1+144*0.0025

n =144/1+0.36

n=144/1.36=105.88 Approximately 106

According to the Taro Yamane (1967) method 106 was the sample size of the study. In the present study sample size was fixed to 141 which have been selected from 5 private sector banks.

Table 6: Private Sector Banks - Employees Branch Wise Distribution

Private Banks	No. of Branches	Bank Employees in Each Branch	Population	Sample
KARNATAKA BANK	9	5	54	52
HDFC	7	5	42	41
ICICI	3	6	18	18
FEDERAL BANK.	2	6	12	12
AXIS BANK	3	6	18	18
Total	**24**		**144**	**141**

Sampling Technique:

A proportionate stratified sampling method has been adopted for the study. Here banks in Kodagu district has been categorised into two strata i.e. Public sector banks and Private Banks. Further under each sector, the sample was collected from 5 banks proportionately i.e., Public Sector banks- SBI, UBI, BOB, Canara Bank Central Bank of India and in Private Sector Banks sample was proportionately collected from Karnataka Bank, HDFC, ICICI, Federal Bank and AXIS Bank.

9.8 VARIABLES/FACTORS USED IN THE STUDY:

Various components and constructs have been identified and built based on past studies relevant to the conceptual model, as stated above. This study attempts to investigate the association between these constructs using research instruments for bank customers and employees. A tabular representation of the complete explanation of these variables and factors has been provided below;

Table 7: Variables/Factors Used in Questionnaire -1

Sl. No.	Variables		
1.	Demographical Profile	Age	
		Gender	
		Educational Qualification	
		Occupation	
		Income (per annum)	
		Domicile of Resident	
2.	Banking Profile	Type of Account	
		Name of the Bank	
		Type of Bank	
		Frequency of Transaction	
		Services Used	
3.	Factors Influencing Green Banking Adoption	**No. of Factors**	**No. of Items**
		Customer Benefit and Information	8
		Attitude towards usage	6
		Effectiveness in Using Green Banking	11
4.	Features of Green Banking		8
5.	General Awareness on Green Banking		9
6.	Awareness on Green Banking Product/Services		17
7.	Perception about Green Banking		15
8.	Challenges of Green Banking		8
9.	Problems on the Implementation of Green Banking		6

Source: Compiled by the Researcher

Table 8: Variables/Factors Used in Questionnaire -2

Sl. No.	Variables	
1.	Banker Profile	Name
		Role/Designation
		Qualification
		Number of Years of Experience
		Number of Years of Experience in the Banking Industry
		Name of the Bank
		Type of Bank
		Type of Employment
		Green Banking practices

Factor		No. of Items
2.	Perception Level on Green Banking Services	7
3.	Agreement Level on Green Banking Activities of Banks	11
4.	Issues with the Implementation of Green Banking	7
5.	Factors Influencing adoption of Green Banking	8
6.	Green Banking Policy to make the Implementation of Green Banking Effectively	11

Source: Compiled by the Researcher

9.9 TESTING OF STATISTICAL ASSUMPTIONS:

All statistical processes are based on assumptions, some of which are more severe than others. In other circumstances, breaking these assumptions has little effect on the substantive study outcomes. In other circumstances, assumptions will be violated, undermining useful research. All quantitatively-based journal articles, theses, and dissertations must demonstrate that their data fulfill the assumptions of the technique they are applying (Garson, 2012). Before executing a parametric or non-parametric test, it is important to validate that the data has a normal distribution. In the current study, the data were validated using the assumptions of normality, simple scatter plot, linearity, and multicollinearity. Each of these assumptions is necessary for structural equation modelling (SEM). To confirm the assumption of regression analysis, linear and multicollinearity have been used.

9.10 RESEARCH TOOLS AND SOFTWARE PACKAGE USED:

1. Reliability Test
2. Validity Test
3. Percentage Analysis
4. Descriptive Analysis
5. Independent Sample t-test
6. One-way ANOVA
7. Simple linear regression
8. Multivariate Regression Analysis
9. Structural Equation Modelling (SEM)

9.11 SOFTWARES USED:

This study relied substantially on cutting-edge statistical methodologies, data and facts, and a range of research database tools. This research relied heavily on IBM SPSS Statistics 23, AMOS 21 Microsoft Excel 2010, and Mendeley. The IBM SPSS 21 program is used for descriptive and inferential analysis, including chi-square, t-test, One-way ANOVA and regression analysis. AMOS 21 is used to analyse the mediating effect and overall effect using SEM.

10. SCHEME OF THE RESEARCH REPORT

Chapter 1 – Introduction: This chapter extensively throws light on the background and the present condition of green banking which further provides a detailed explanation of the topic from the broad context to the local context. It also addresses the focus, scope, relevance, significance, research questions, problem statement, research gap, questions, objectives, hypotheses and scheme of the research report. Research design exhibits the feasible blueprint of the whole research process starting from explaining the nature & source of data, research instrument, use of scale in the study, construction of research instruments, development and validation, sampling design, variables/factors used in the study, testing assumptions till the usage of various research tools and software package for the analysis.

Chapter 2 – Review of Literature: Second chapter of the research report categorizes the related articles, doctoral dissertations, books and research papers on the basis of the study variables. Firstly, all the studies conducted in the international context have been presented and secondly, the studies conducted in Indian contexts with regard to green banking have been demonstrated. A further summary of the review has been presented in accordance with the demographic profile of the customers, Features of Green Banking, General Awareness on Green Banking, Awareness on Green Banking Product/Services, Perception about Green Banking, Factors influencing the adoption of Green Banking, Effectiveness in Using Green Banking and Challenges and Problems on the Implementation of Green Banking

Chapter 3 – Conceptual Framework: Moreover, the conceptual and theoretical background of the study variables is addressed which gives depth understanding of green banking concepts, theories and hypothetical relationships.

Chapter 4 – Evolution of Green Banking: The fourth chapter provides a deep notion of green banking by addressing its evolution process and highlighting various green banking practices initiated by various foreign as well as Indian banks. Overall, this chapter is an analysis of the secondary information available on green banking to better understand its standing on global as well local ground.

Chapter 5 – Data Analysis and Interpretation: This chapter is broken into two sections: customer and employee analyses. These two portions are further separated into three pieces. The first portion includes a percentage analysis. The second section is a descriptive analysis that applies a basic mean and standard deviation. In the third portion, statistical methods such as the independent sample t-test, one-way ANOVA, simple regression, simple regression (multi-group and multiple regression analysis), and structural equation modeling are used to evaluate hypotheses (SEM). The route analysis was carried out using the Analysis of Moment Structures (AMOS) program, as well as correlation and regression analysis. The results are given in both tabular and graphic formats. The data was analyzed using the Standard Statistical Package for Social Sciences (SPSS) version 24.0 software.

Chapter 6 – Findings, Suggestions and Conclusion: Considering the research objectives, this chapter shows detailed findings that are separated into two major categories: findings about customers and findings about employees. It is further divided into three sections under each of these main headings: sample profile, results relating to constructs, and findings on hypotheses. Furthermore, based on the study's findings, this chapter makes various recommendations to customers, employees, financial institutions, and the government. Finally, the chapter concludes by recommending future research directions for the current study.

11. SCOPE OF THE STUDY

Geographical Scope: The present study covers the customers and employees of banks practicing green banking who are residing in the region of Kodagu District of Karnataka State. Particularly, 3 Taluks of Kodagu district i.e., Madikeri, Virajpet and Somwarpet, has been targeted to get the responses with respect to study objectives.

Institutional Scope: As far as the number of banks covered for this study is concerned, 8 banks have been listed namely, Bank of Baroda, Union Bank of India, State Bank of

India, Canara Bank, Central Bank of India, Karnataka Bank, HDFC bank. Research considers the viewpoint of both customers and employees of banks practicing green banking.

Conceptual Scope: Previous studies have highlighted various concepts and theories pertaining to green banking. Based on which the researcher has restricted to some concepts and variables of green banking which is considered based on the objectives, research questions and hypotheses. The concepts covered under this study include customers' awareness and perception level on green banking, the effectiveness of green banking and other factors such as customer benefit and information, attitude towards usage and banking efficiency and also Challenges in availing green banking products and services.

12. SIGNIFICANCE OF THE STUDY

This study has observed numerous opportunities for banking industries to survive in a long run through the effective implementation of green banking. Previous studies claim that green banking is not just to ensure the greening of industries, but it is also essential for the banks in the future improvement of their asset quality. By demonstrating and supporting the bank's environmental commitment, green banking improves the bank's reputation. It also lowers operational costs by using less office supplies, energy, and water, boosts productivity and efficiency of employees through expert and optimal use of technology, and lowers risks by putting in eco-friendly machinery. It helps to develop customers' awareness of green by organizing awareness programs, saves a lot of trees by using less paper, cuts down on greenhouse gas emissions by using teleconferencing and setting up a transportation pool for staff, and decreases the amount of non-performing assets by investing in less risky projects (Mir & Bhat, 2022). Furthermore, it has also been highly argued that green banking has four advantages, according to Meena (2013): it decreases deforestation, increases consumer and employee environmental awareness, benefits from reduced interest rates, and modifies business activities in a way that is more ecologically friendly. Realizing the numerous strengths and opportunities of green banking the researcher attempted to examine the present status of green banking implementation which demonstrated a low level of awareness among the customers as well as employees in the majority of the regions of the country with respect to green banking. This tempted the researcher to understand the awareness level of customers and employees on green banking in the region of Kodagu district.

Many significant researches on green banking have previously been undertaken. Scholten's classifies green bank marketing as part of a bigger CSR strategy. Economic factors such as banks have a significant role in funding environmentally friendly initiatives and so contribute to society (Nizam et al., 2019). In the non-banking industry, Karna et al. (2003) and Grove et al. (1996) explained the relationship between green marketing and Corporate Social Responsibility (CSR). Lymperopoulos et al. (2012) investigated the positive influence of green bank marketing and green image; Evangelinos et al. (2009) focused on the development of green services. According to Kumar and Prakash (2018), applying sustainable banking practices may be a major stimulant to sustainable development, and they point to a lack of studies on green banking in Indian institutions. In contrast to developing nations, which have largely overlooked the topic of green banking (Khan et al., 2015; Jeucken, 2015; Amacanin, 2005; Scholtens, 2011; Roca & Searcy, 2012; Weber, 2016), this field of study remains relatively unexplored in nations like India (Prakash et al., 2018). The majority of research conducted in India focuses on CSR, environmental management (Biswas, 2011; Rajput et al., 2013; Sahoo & Nayak, 2007; Sharma & Mani, 2013), green banking strategies (Bahl, 2012; Jha & Bhoome, 2013; Tara & Singh, 2014), and green banking practices used by both public and private sector banks. Hence, this research rigorously aimed to analyse the awareness and perception level of customers which plays a vital role in making green banking practices effective. As a result, the present research will enable the banks to understand the perception of customers on green banking, which will help them to alter their green banking services to provide a better banking experience and also to address the understand the challenges faced by the customers in availing green banking services which can be tackled by the bankers. This research will also be useful for banks in understanding how important these green efforts, particularly green procedures, are for improving sustainability. The study will serve as a barometer for banking activities toward greener nations and a greener world, because these are efforts toward a carbon-free world, and efforts toward controlling global warming, which are unquestionably a significant long-term contribution to society and a reason for a better climate and a better tomorrow.

13. LIMITATION OF THE STUDY

The current study has certain drawbacks. Perception measurement is susceptible to restrictions at every level, some of which are listed below.

- The research was limited to the Kodagu District of Karnataka State. Although research in a given field delivers the most trustworthy data, generalization cannot be achieved solely on the findings of this study.
- The research is mostly based on the opinions of the sample respondents as gathered through questionnaires. Because of their lack of education and awareness, several of them provided inadequate replies to some queries. In certain circumstances, the responses are approximations based on personal judgment.
- Results and the study's recommendations are based on the study regions of Kodagu District in Karnataka State, with some suggestions based on the researcher's personal observations.
- There are various constructs which have a direct or indirect impact on the effectiveness of green banking, but as per the study objectives and intents, only awareness, perception, customer benefit and information, attitude towards usage and banking efficiency has been considered, which again poses as limitations of the study.

14. FINDINGS OF THE STUDY

14.1 FINDINGS RELATED TO CUSTOMERS

a) Sample Profile:

Percentage analysis has been used to obtain the sample profile and sample wise distribution of demographic profiles. The results of demographic details of the customers are presented below;

- According to the percentage analysis, first majority (48.6 percent) of the customers belong to the age category of 18-25 years, followed by 22.6 percent of them are within the age group of 26-35 years.
- As far as educational qualification of the customers is considered, first majority are graduates (58.3 percent) and second majority (21.5 percent) of the customers have the educational qualifications of PUC/Diploma.
- First majority of the customers are salaried (25.6 percent followed by self-employed (25 percent), business man/woman (19.8 percent) and professionals (16.5 percent).

Moreover 8.8percent of the customers are students and only few customers are Home Makers (3.5 percent) and Retired (.8 percent)

- 52 percent of the customers have the annual income of less than Rs.100000, 19.9 percent of the customers earn 1,00,000-2,00,000 and 16.9 percent of the customers have the annual income of Rs.2,00,000-5,00,000.
- When it comes to geographical locations of the customers, first majority (53.1 percent) of the respondents belong to rural region and second majority belongs (28.3 percent) to the semi-urban region.
- Majority of the customers have saving bank account (73.3 percent) and remaining customer possessed current account (14 percent) and recurring deposit account (9.3 percent).
- Majority of the customers have bank account in SBI (18.8 percent) and remaining customer have account in Karnataka Bank (16.1 percent), HDFC (14.5 percent), Canara Bank (12.8 percent), ICICI (10.9 percent) and BOB (10.4 percent).
- Majority (51.2 percent) of the respondents are the customers of public sector bank and remaining 48.8percent of the respondents have account in private sector banks.
- As far as frequency of transaction is concerned, first majority of the customers transact on a Weekly basis (31.2 percent) and second majority of the customers (30.6 percent) transact on a monthly basis.
- When it comes to the usage of green banking products and services, all the (100 percent) customers are availing the benefit of Debit cum ATM card and 79.64 percent of the customers are using mobile banking. Furthermore, cheque book facility is used by 54.76 percent of the customers and 53.93 percent of the customers use online banking.

b) Major Findings on the Constructs:

According to the descriptive statistics, customers highly agree with General Awareness on Green Banking (M=4.0339), followed by agreement on features of Green Banking (M=4.0022), Problems on the Implementation of Green Banking (M=3.9895), Customer Benefit and Information (M=3.9795), Perception about Green Banking (M=3.9669), Attitude Towards Usage (M=3.9389), Banking Efficiency (M=3.9385), Challenges and Problems on the Implementation of Green Banking (M=3.9190) and Awareness on Green Banking Product/Services (M=3.8233).

Features of Green Banking:

- ❖ According to the customers, main feature of green banking is that it provides Eco-friendly Products and Services (M=4.3476), followed by a digital India initiative to reach the mass customer (M=4.1000), positive role of Demonetization in green banking (M=3.9857), and Maintaining High Degree of Ethical Standards (M=3.9833).
- ❖ The least agreed-upon feature was a banks' contribution towards Environment Oriented Activities (M=3.8643).

General Awareness on Green Banking:

- ❖ According to the descriptive measures, customers are highly aware that green banking is paperless banking (M=4.3179), followed by green banking reduces cost and energy (M=4.2202), Green banking always cares for sustainable and green growth in industrialisation and for social purposes (M=4.1286).
- ❖ Respondents have low awareness on an orthodox bank becoming a green bank by directing its core operations toward the betterment of environment (M=3.8488).

Awareness on Green Banking Product/Services:

- ❖ Customers are highly aware of Automated teller machines (M=4.1286), followed by Online banking (M=4.0940), Cash deposit system (M=3.9631), Green checking (M=3.9631) and Mobile banking (M=3.9452).
- ❖ Respondents have low awareness on green mortgage (M=3.1988).

Perception about Green Banking:

- ❖ Customers have high perception on Banks doing their bit towards green banking (M=4.1964), followed by promoting green banking trough ATM card or debit card (M=4.1369), Green banking being the only way to achieve sustainable development (M=4.0929).
- ❖ Perception on Foreign banks practicing green banking on a much serious note (M=3.8452) seemed to be the least agreed statement.

Factors Influencing the Adoption of Green Banking:

- ❖ Customers consider Improved Customer Experience (Quick and Convenience) (M=4.2690) as the major factor influencing the adoption of green banking, followed by OTP system security in electronic transactions (M=4.0452), Lower transaction cost (M=4.0452), Reward point to promote green banking habits

(M=3.9976) and Social responsibility of the banks to protect the environment (M=3.9905).

- Customers consider Green Performance Evaluation as relatively minor factor influencing the adoption of green banking (M=3.8512).

Effectiveness of Using Green Banking:

- Customers consider Solar powered ATMs are effective in fulfilling the objective of green banking (M=4.1143) as the major effectiveness of using green banking, followed by Banks must focus on promoting the consciousness and benefits of the green banking to the employees who are in direct touch with the customers (M=4.0833), Banks should concentrate on increasing the financial literacy of the customers (M=3.9321).
- Customers consider Banks giving enough information to promote Green Banking measures shows low effectiveness (M=3.8131).

Challenges of Green Banking:

- Customers consider Unawareness is resisting customer to go for green banking (M=4.1190) as the major challenges of green banking, followed by Privacy/data protection is the biggest challenge of green banking (M=4.0595) and green banking is a new concept and customer needs time to adopt it (M=3.9619).
- Customers consider green banking is an expensive process as a minor challenge of green banking (M=3.7381).

Problems on the Implementation of Green Banking:

- Customers consider Lack of Human resource capacity (M=4.1190) as the major challenges of green banking, followed by Banks have not taken significant effort in creating Awareness about the green banking products/ services (M=4.0798) and Low awareness about the scope/business opportunity (M=4.0512).
- Customers consider Difficulty in using the services/banking (M=3.7381) as a minor problem in the implementation of green banking.

c) Major Findings on Hypotheses Testing:

Table 9: One-way ANOVA and Independent Sample t-test Results

Sl. No.	Hypotheses	Demographical variable	Test	Result
1.	H1.1: Demographic profile of the respondents significantly influences their awareness level on green banking.	Age	P>0.05	H1.1 is partially accepted
		Gender	P<0.05*	
		Educational Qualification	P<0.01**	
		Occupation	P>0.05	
		Income (P.A)	P<0.05*	
		Domicile of Resident	P>0.05	
2.	H1.2 Banking profile of the respondents significantly influences their awareness level on green banking.	Type of Account	P>0.05	H1.2 is rejected
		Name of the Bank	P>0.05	
		Type of Bank	P>0.05	
		Frequency of Transaction	P<0.01**	
3.	H2.1: Demographic profile of the respondents significantly influences their perception level on green banking.	Age	P<0.05*	H2.1 is partially accepted
		Gender	P>0.05	
		Educational Qualification	P<0.01**	
		Occupation	P>0.05	
		Income (P.A)	P>0.05	
		Domicile of Resident	P<0.01**	
4.	H2.2: Banking profile of the respondents significantly influences their perception level on green banking.	Type of Account	P<0.05*	H2.2 is Accepted
		Name of the Bank	P<0.01**	
		Type of Bank	P>0.05	
		Frequency of Transaction	P<0.01**	

**Significance at 1% level *Significance at 5% level

Table 10: Findings on Regression Analysis

Sl. No.	Hypotheses	Dependent Variable	Test	Result
1.	H3: Awareness on green banking practices will directly impact customers' perception on green banking.	Customers' perception	P<0.01**	H3 is accepted
2.	H4: Effectiveness of green banking practices is substantially influenced by customers' awareness.	Effectiveness in Using Green Banking	P<0.01**	H4 is accepted
3.	H5: Perception on green banking practices directly impacts the effectiveness of green banking practices.	Effectiveness in Using Green Banking	P<0.01**	H5 is accepted
4	H8: Customer Benefit and Information, Attitude towards Usage and Banking Efficiency substantially contributes to the effectiveness of green banking practices.	Effectiveness in Using Green Banking	P<0.01**	H8 is accepted
5.	H10: Challenges/problems in availing green banking products and services will moderate the relationship between customers' perception and effectives of green banking practices.	Low	P<0.01**	H10 is accepted
		Moderate	P<0.01**	
		High	P<0.01**	

**Significance at 1% level *Significance at 5% level

Table 11: Major Findings on Structural Equation Modelling (SEM)

Sl. No.	Hypotheses	Relationship	Estimates	P	Result
1.	H6: Perception on green banking practices significantly mediates the relationship between awareness and its effectiveness.	Perception ←Awareness	.617	HS	H6 is accepted
		Effectiveness ←Perception	.472	HS	
		Effectiveness ←Awareness	.134	HS	
		Effect (Total)	.425	HS	
		Effect (Direct)	.134	HS	
		Effect (Indirect)	.292	HS	
2.	H7: Customer Benefit and Information, Attitude towards Usage and Banking Efficiency is significantly determined by customers' perception on green banking.	Banking Efficiency ←Perception	.540	HS	H7 is accepted
		Customer benefits and information ←Perception	.548	HS	
		Attitude ←Perception	.546	HS	
3.	H9: Customer Benefit and Information, Attitude towards Usage and Banking Efficiency significantly mediates the relationship between perception on and effectiveness of green banking practices.	Factors← Perception	.670	HS	H9 is accepted
		Effectiveness← Perception	.325	HS	
		Effectiveness ←Factors	.328	HS	
		Effect (Total)	.544	HS	
		Effect (Direct)	.325	HS	
		Effect (Indirect)	.219	HS	

**Significance at 1% level *Significance at 5% level

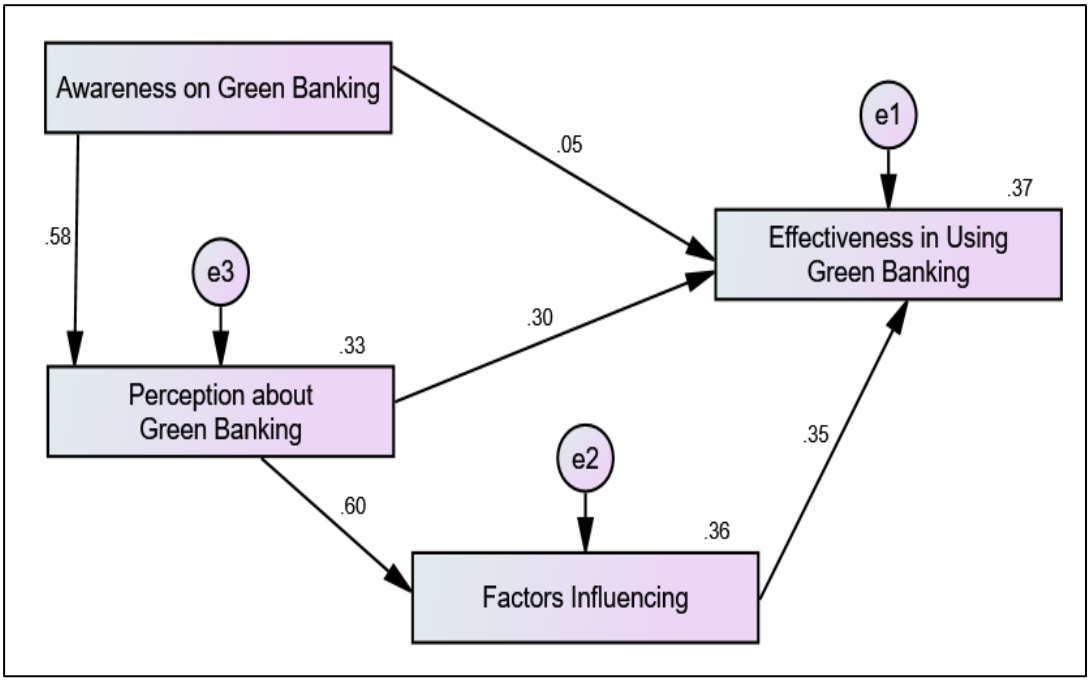

Figure 2: Tested Model

14.2 FINDINGS RELATED TO EMPLOYEES:

a) Sample Profile:

- When it comes to the designation of employees, first majority of the employees are Cashier (19.7 percent) followed by Probationary Officer (16.4 percent), Clerk (14.8 percent) and Loan Officers (14.6 percent).
- As far as year of experience of the employees is concerned, first majority of the employees have 5 to 10 years of experience (38.3 percent) followed by up to 5 years of experience (36.1 percent), 10 to 15 years of experience (12.4 percent) and 15 to 20 years of experience (7.5 percent).
- Majority of the employees have up to 5 years of experience in banking (66 percent) followed by 5 to 10 years of experience (13.2 percent), 10 to 15 years of experience (7.55 percent) and 15 to 20 years of experience (7.5 percent).
- Majority of the employees are working in HDFC Bank (17 percent) and ICICI Bank (17 percent). Whereas, 15percent of the respondents are working in SBI; 14percent of them are working in Karnataka Bank and 12percent of them are working in Bank of Baroda.
- Majority i.e., 58.5 percent of the respondents work in public sector bank and remaining 41.5percent of the respondents are working in private sector banks.
- Majority i.e., 75.5 percent of the respondents work on a permanent basis but only 24.5percent of the employees work on a Contract Basis. It shows majority of them to be a permanent worker.
- Majority i.e., 88.7 percent of the respondents agree with the availability of green banking practices in their respective banks but 11.3 percent of the employees deny the availability of green banking practices in their respective banks.

b) Major Findings on the Constructs:

According to the descriptive measures, employees have high Agreement Level on Green Banking Activities of Banks (M=4.2825), followed by Factors Influencing adoption of Green Banking (M=4.2763), Perception about Green Banking, green banking activities and Issues with the implementation of green banking (M=4.2661) and Issues with the Implementation of Green Banking (M=4.2518). According to the lowest mean, perception on Green Banking Policy to make the Implementation of Green Banking Effectively (M=4.1710) found to be low.

Perception Level on Green Banking Services:

- Employees have high agreement level on banks being successful in modifying the behaviour of the consumers from the traditional banking to green banking (M=4.3639), followed by A green bank must be ethically motivated as a social, alternative or sustainable bank concerned with social and environmental impacts (M=4.3396), Green banking not only promotes environmental sustainability but also the social responsibility (M=4.3288) and Green banks making banks techno-friendly (M=4.3019).
- Perception on the major role of Government in implementing Green Banking (M=4.1294) found to be low.

Green Banking Activities:

- According to the descriptive measures, employees have high Agreement Level on Banks should give more emphasis to make the easiest way to help environment by eliminating paper waste (M=4.4124), followed by Banks are taking initiatives to attract customers towards the Green Banking products (M=4.3854).
- Perception on the growth of green banking has greatly helped the banks in controlling their overheads and operating cost (M=4.1941) found to be low.

Issues with the Implementation of Green Banking:

- Employees highly consider Green banking services to be often constrained by barriers as knowledge gaps to design and operationalize the products and services (M=4.3450) as a major issue, followed by Most financial institutions are not active in terms of providing green banking products and services (M=4.3208), Lack of coordination among stakeholders (M=4.3181) and Financial obstacle (M=4.2857).
- Agreement level on Central banks and regulators need to play a market-making role to promote green investments and operations found to be low (M=4.0647) found to be low.

Factors Influencing adoption of Green Banking:

- Employees have high agreement level on competition pressures (M=4.4609) as a major factor, followed by Vision of the bank towards sustainability (M=4.3423), Stakeholders' pressures (M=4.3181) and Ethics of sustainability and accountability (M=4.2803).
- Perception on economic benefit/operational cost efficiency (M= 4.1024) found to be low.

Green Banking Policy to make the Implementation of Green Banking Effectively:

- Employees have high Agreement Level on Banks should sanction loan to its industrial customers for a project, only when they obtain a NOC (No objection certificate) or Consent to establish" regarding environmental issues from Govt./ statutory body under Green Banking (M=4.2507), followed by Assign higher risk weights to carbon-intensive assets when evaluating the capital to risk assets ratio of bank (M=4.2453).
- Perception on Banks needs to formulate strategies to design specific policies for different environmental sensitive sectors (M=4.0189) found to be low.

c) Major findings on Hypotheses Testing:

Table 12: One-way ANOVA and Independent Sample t-test Results

Sl. No.	Hypotheses	Demographical variable	Test	Result
1.	H11: Banker Profile will have influence on perception about green banking, green banking activities, issues with the implementation of green banking, factors influencing adoption of green banking and green banking policy to make the implementation of green banking effectively.	Type of Bank	P>0.05	H11 is partially accepted
		Role/Designation	P<0.01**	

**Significance at 1% level *Significance at 5% level

Table 13: Findings on Regression Analysis

Sl. No.	Hypotheses	Dependent Variable	Test	Result
1.	H12: Perception Level on Green Banking Services and Agreement Level on Green Banking Activities of Banks will have direct effect on Green Banking Policy to make the Implementation of Green Banking Effectively.	Green Banking Policy to make the Implementation of Green Banking Effectively	P<0.01**	H12 is accepted

**Significance at 1% level *Significance at 5% level

15. SUGGESTIONS

a) Suggestions for Customers:

- Almost all the respondent's use ATM card and 67 percent use mobile banking facilities, which indicate 33 percent of the customers have not opted for mobile banking. Hence, it is recommended for the customers to avail all the e-services of the banks which can help to reduce waste of paper, time, as well as the carbon footprint.
- Customers undertaking Daily banking transactions showed highest perception on green banking (M=4.1325) which indicates frequency of transaction in the bank have significant influence on their perception on green banking, hence, these customers should take a step forward to spread a word of mouth on green banking and its benefits in improving other customers convenience and cost-effective transactions.
- Customers should increase the use of their e wallet, mobile banking, e-banking to pay for all regular expenses such as buying groceries, payment of utility bills train tickets, purchasing, and school and hospital fees. This would assist us in transitioning to a safe cashless transaction and easing the burden of having to carry hard cash.
- Only few (6.43 percent) customers own demat account, this may be due to lack of awareness among the customers with regard to stock market involvement, hence customers should educate themselves with this regard thereby encourage green banking.
- Instead of taking print-copies, customers must use e-applications, e-statements, e-mails, digital saving accounts, digital documents, and digital signatures.
- Respondents have comparatively low awareness on green mortgage (M=3.1988), hence the customers understand and educate themselves on the benefits of investing in green banking. Therefore, it is recommended for the customers to put their money into environmentally friendly projects such as green home loans, green mortgages, renewable energy such as solar recycling and waste management, energy-saving vehicles, low-carbon initiatives, agriculture related activities, for which the government offers a zero-processing fee, a lower interest rate, tax breaks, incentives, and subsidies.

b) Suggestions for Employees:

- As Customers consider Improved Customer Experience (Quick and Convenience) (M=4.2690) as the major factor influencing the adoption of green banking, employees should take an effective measure to provide good experience to the customers and help them to set up e banking services in their digital devicein a polite and friendly manner.
- Customers consider Unawareness is resisting customer to go for green banking (M=4.1190), hence the management along with employees are required to participate in various programs, such as customer days, customer meetings, and so on, in which they communicate directly with their customers and start educating them on green new products and services.
- Employees have high agreement level on competition pressures (M=4.4609) as a major factor influencing the adoption of green banking. In order to further improve and adopt green banking practices it is recommended to attract International investment and new private financial investors for sustainable projects in India are critical sources of unused capital to stimulate the implementation of renewable energy in India.
- Employees highly consider green banking services to be often constrained by barriers as knowledge gaps to design and operationalize the products and services (M= 4.3450) as a major issue. In consequence apart from educating customers, employees should take a step ahead to learn and understand the concepts as well as features and benefits of green products and services which will help to implement and delivered the green services smoothly without huge costs.
- Employees have high Agreement Level on Banks should give more emphasis to make the easiest way to help environment by eliminating paper waste (M=4.4124), hence survey should be conducted by the employees concerning the complexity faced by the customers with the usage of e-services; so that complexities can be identified and eliminated to provide a smooth banking operation experience.

c) Suggestion for Financial Institutions:

- Privacy/data protection is the biggest challenge of green banking (M= 4.0595) according to customers, as a result it is recommended for the banks to tackle the security threat with advanced technology adoption for banking operations.

- Managerial Commitment and Support is a critical factor in encouraging and motivating employees to implement new products and services in order to adopt green banking practices.
- Customers who choose Green banking services must receive consistent services free of technical glitches. It is the bank's responsibility to ensure that there are no technical issues. Banks should also ensure the privacy or secrecy of customer data. This will encourage customers to choose green banking.
- As it was evidenced that Awareness on green banking practices directly impacts customers' perception on green banking, Banks can join hands by financially supporting programs conducted by several NGOs and environmental activists as they are spreading environmental awareness among the general public by organizing awareness programs and seminars on the importance of green banking.
- Green bank loans with economic concessions for environmentally friendly products and infrastructure improvements such as fuel-efficient cars, green construction projects, accommodation and house furnishing loans to install solar energy systems, and so on can be introduced by banks.
- As per the hypothesis testing, it is proved that Customer Benefit and Information, Attitude towards Usage and Banking Efficiency substantially contributes to the effectiveness of green banking practices, hence in order to encourage the effectiveness of green banking, banks should implement Improving service standards, Digitization of manual tasks, Attracting and retaining staff, Reducing Cycle time, and reducing administrative burden.
- As per the findings, when the customer faces low level of challenges such as Unawareness and Privacy/data protection etc., customer perception on green banking highly contributes to its effectiveness, hence the financial institutions should ensure low complexity in linking their bank account without human intervention and other complexities such as long unending documentation and due to which the customers have to visit the banks frequently.
- The respondents' place of residence has a significant impact on their level of perception of green banking. In India, smaller projects such as solar systems in buildings and the installation of solar cells or micro - grids in rural areas have the potential.
- Banking executives should be aware of environmental issues and should only finance projects that don't involve any type of environmental pollution.

- ❖ Banks, in general, do not take many steps to market and promote their products and services via advertising.
- ❖ Management must be serious enough to rigorously implement the policy. And to do so, all employees must be encouraged and trained.
- ❖ At both private and public sector banks, performance tracking based on fewer errors and continuous evaluation based on customer satisfaction with Green Financial services and Green HR practices should be prioritized.

d) Suggestions for Government/Local Authorities:

- ❖ Employees have high Agreement Level on Banks should sanction loan to its industrial customers for a project, only when they obtain a NOC (No objection certificate) or Consent to establish" regarding environmental issues from Govt./statutory body under Green Banking (M= 4.2507), therefore Government should encourage these practices and simplify the documentation procedures.
- ❖ The RBI should issue some fruitful and constructive policy recommendations to aid and facilitate the transition from current traditional models of operation to more comprehensive and environmentally friendly business practices in order to achieve the goal of economic growth in a more sustainable way and to decarbonize the economy.
- ❖ The government should improve the environmental market conditions in order to provide more incentives for commercial banks to invest in environmental projects.
- ❖ The government should promote green banking research and development. The government must recognize and appreciate best green practices adopted by the banks.

16. CONCLUSION

Implementation of green banking practices has been increasingly getting recognition as it provides extending hand in the promotion of sustainable growth of the banking institutions. As a result, this study was mainly intended to identify the key factors influencing green banking and to understand the overall perception of customers as well as employees with respect to green practices initiated by the banks. This study has also addressed awareness level and various issues pertaining to green banking. The key findings of this study has proved that awareness on green banking practices substantially improves customers perception on green banking which further makes the

green banking practices very effective. In addition, other influencing factors such as banking efficiency, customer benefits and information and attitude of the customer also enhance the effectiveness of green banking. Previous studies have justified so far that green banking practices reduces carbon footprints, green gas omission, pollution and also protect natural resources by discouraging deforestation and environment pollution. These environmental friendly practices of banks help them to survive in the long run at the same time increase their competitiveness with goodwill. The actual transformation with this respect can take place when stakeholders at the grassroots level i.e., customers and employees realise the need of green banking initiatives in transforming their livelihood with safety, protection and sustainable growth. Hence this study was an attempt to assess the importance of awareness level and customer perception in making green banking practices an effective strategy. Lastly but importantly employees have highly recommended the importance of green banking policy to make the implementation of green banking effectively.

17. RECOMMENDATION FOR FURTHER RESEARCH

Every research opens up a platform for another research for future knowledge accumulations in a particular domain so that it enhanced further development in that area. This research has also listed out various ways through which further study can be undertaken in this area;

- As this study has generally considered all the banks practicing green banking, comparative study can be undertaken between Public, private and foreign banks with respect to the effectiveness of green banking practices initiated by them.
- Further study can be done to analyse the effectiveness of green practices on the banks' overall performance by considering only secondary numerical information with the help of CAMELS Technique.
- This research has considered awareness, perception, customer benefit and information, attitude towards usage, banking efficiency and effectiveness of green banking practices, future studies can be conducted by adding other variables such as e-service quality and customer satisfaction etc.
- The geographical location of this study is restricted to Kodagu district; hence further study can be done in other location of the country where extensive study has not been done on green banking practices so far.

18. REFERENCES

1. United Nations Environment Programme Finance Initiative (UNEP FI). 2007. Green financial products and services.
   Retrieved from: http://www.unepfi.org/fileadmin/documents/greenprods_01.pdf
2. United Nations. 2013. World economic and social survey 2013: Sustainable development challenges.
   https://sustainabledevelopment.un.org/content/documents/2843WESS2013.pdf
3. McLennan, M. (2021). The Global Risks Report 2021 16th Edition. Cologny, Switzerland: World Economic Forum.
4. Bayar, Y., Ozkaya, M. H., Herta, L., & Gavriletea, M. D. (2021). Financial development, financial inclusion and primary energy use: evidence from the European Union transition economies. *Energies*, *14*(12), 3638.
5. Lymperopoulos, C., Chaniotakis, I. E., & Soureli, M. (2012). A model of green bank marketing. *Journal of Financial Services Marketing*, *17*(2), 177-186.
6. Park, H., & Kim, J. D. (2020). Transition towards green banking: role of financial regulators and financial institutions. *Asian Journal of Sustainability and Social Responsibility*, *5*(1), 1-25.
7. Kärnä, J., Hansen, E., & Juslin, H. (2003). Environmental activity and forest certification of forest products-A case study in Europe.
8. Scholtens, B. (2009). Corporate social responsibility in the international banking industry. *Journal of Business Ethics*, *86*(2), 159-175.
9. Scholtens, B. (2011). Corporate social responsibility in the international insurance industry. *Sustainable Development*, *19*(2), 143-156.
10. Evangelinos, K. I., Skouloudis, A., & Nikolaou, I. E. (2009). An analysis of corporate social responsibility (CSR) and sustainability reporting assessment in the Greek banking sector. In *Professionals' perspectives of corporate social responsibility* (pp. 157-173). Springer, Berlin, Heidelberg.
11. Oyegunle, A., & Weber, O. (2015). *Development of sustainability and green banking regulations: Existing codes and practices* (Vol. 65). Waterloo, ON, Canada: Cigi.
12. Akhtar, D. M. I. (2016). Research design. *Research Design (February 1, 2016)*.
13. Charlton, R. (2000). is an'ideal'questionnaire possible?. *International Journal of Clinical Practice*, *54*(6), 356-359.

14. Dhamija, A., & Sahni, D. (2018). Green Banking: Perception and Willingness of Customers to Adapt Green Banking. *International Journal of Financial Management*, *7*(2), 1-8.
15. Ganesan, R., & Bhuvaneswari, A. (2016). Customer perception towards green banking. *IOSR Journal of Economics and Finance*, *7*(05), 05-17.
16. Herath, H. M. A. K., & Herath, H. M. S. P. (2019). Impact of Green banking initiatives on customer satisfaction: A conceptual model of customer satisfaction on green banking. *Journal of Business and Management*, *1*(21), 24-35.
17. Hossain, M. Z., Ahmed, M., & Nisha, N. (2015). Consumer attitudes and perception towards green banking in Bangladesh. *Green Banking in Bangladesh and Beyond*, 48-76.
18. Ibe-enwo, G., Igbudu, N., Garanti, Z., & Popoola, T. (2019). Assessing the relevance of green banking practice on bank loyalty: The mediating effect of green image and bank trust. *Sustainability*, *11*(17), 4651.
19. Iqbal, M., Nisha, N., & Raza, S. A. (2019). Customers' perceptions of green banking: examining service quality dimensions in Bangladesh. In *Green business: Concepts, methodologies, tools, and applications* (pp. 1071-1090). IGI Global.
20. Johnston, M. P. (2014). Secondary data analysis: A method of which the time has come. *Qualitative and quantitative methods in libraries*, *3*(3), 619-626.
21. Katti, M. V., & Jagtap, M. V. V. (2022). An Evaluation of Customer Awareness towards Green Banking Practices of State Bank of India, 21(5), 825-833. Sharma, M., & Choubey, A. (2022). Green banking initiatives: a qualitative study on Indian banking sector. *Environment, Development and Sustainability*, *24*(1), 293-319.
22. Kothari, C. R. (2004). *Research methodology: Methods and techniques*. New Age International.
23. Lalon, R. M. (2015). Green banking: Going green. *International Journal of Economics, finance and management sciences*, *3*(1), 34-42.
24. Li, Q. (2013). A novel Likert scale based on fuzzy sets theory. *Expert Systems with Applications*, *40*(5), 1609-1618.
25. Martin, E. (2006). Survey questionnaire construction. *Survey methodology*, *13*, 2006.
26. Masukujjaman, M., Siwar, C., Mahmud, M. R., & Alam, S. S. (2016). Bankers' perception of Green Banking: Learning from the experience of Islamic banks in Bangladesh. *Geografia*, *12*(2).

27. Nedumaran, D. G., & Baladevi, M. (2020). Impact on customer perceptions of green banking process with special reference in Rajapalayam Taluk.
28. Rai, R., Kharel, S., Devkota, N., & Paudel, U. R. (2019). Customers perception on green banking practices: A desk. *The Journal of Economic Concerns*, *10*(1), 82-95.
29. Rajput, N., Kaur, B., & Arora, A. P. (2012). Green banking in India-Issues and practices. *International Journal of Management, IT and Engineering*, *2*(12), 448.
30. Sahoo, B. P., Singh, A., & Jain, N. (2016). Green banking in India: problems and prospects. *International Journal of Research-Granthaalayah*, *4*(8), 92-99.
31. Giridhar, K. V., & Sudhakar, K. G. (2017). Green Banking: Issues and challenges in India. *International Journal of Latest Technology in Engineering, Management and Applied Science*, *6*(6), 130-132.
32. Bouteraa, M., Hisham, R. R. I. R., & Zainol, Z. (2022). Challenges affecting bank consumers' intention to adopt green banking technology in the UAE: a UTAUT-based mixed-methods approach. *Journal of Islamic Marketing*, (ahead-of-print).
33. Islam, M. A., Yousuf, S., Hossain, K. F., & Islam, M. R. (2014). Green financing in Bangladesh: challenges and opportunities–a descriptive approach. *International Journal of green economics*, *8*(1), 74-91.
34. Shrivastava, D., Shrivastava, A., & Prakash, G. (2019). A Study On The Determining Demographic Factors For Green Banking Usage. *Think India Journal*, *22*(14), 13979-13986.
35. Bordeianu, O. M., & Morosan-Danila, L. (2013). Development and validation of research instruments for cross-cultural studies in economics and management. In *20th International Economic Conference-IECS* (pp. 273-279).
36. Smallbone, T., & Quinton, S. (2003). Increasing Business Students' confidence in questioning the Validity and reliability of their research. *Electronic Journal of Business Research Methods*, *2*(2), pp67-76.
37. Kline, P. (2014). *An easy guide to factor analysis*. Routledge.
38. Field, A. (2013). *Discovering statistics using IBM SPSS statistics*. sage.
39. Ghauri, P., Grønhaug, K., & Strange, R. (2020). *Research methods in business studies*. Cambridge University Press.
40. Curran–Everett, D., & Benos, J. (2004). Guidelines for reporting statistics in journals published by the American physiological association. *American Journal of Physiology and cell physiology*, *287*, 243-5.
41. Field, A. (2013). *Discovering statistics using IBM SPSS statistics*. sage.

42. Driscoll, P., Lecky, F., & Crosby, M. (2000). An introduction to everyday statistics—1. *Emergency Medicine Journal*, *17*(3), 205-211.
43. Royston, P. (1991). Estimating departure from normality. *Statistics in medicine*, *10*(8), 1283-1293.
44. Öztuna, D., Elhan, A. H., & Tüccar, E. (2006). Investigation of four different normality tests in terms of type 1 error rate and power under different distributions. *Turkish Journal of Medical Sciences*, *36*(3), 171-176.
45. Toledo, A. H., Flikkema, R., & Toledo-Pereyra, L. H. (2011). Developing the research hypothesis. *Journal of Investigative Surgery*, *24*(5), 191-194.
46. Banerjee, A., Chitnis, U. B., Jadhav, S. L., Bhawalkar, J. S., & Chaudhury, S. (2009). Hypothesis testing, type I and type II errors. *Industrial psychiatry journal*, *18*(2), 127.
47. Creswell, J. W., & Creswell, J. (2003). *Research design* (pp. 155-179). Thousand Oaks, CA: Sage publications.